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10/634,651	08/05/2003	Martin Malservisi	GOUD1240	6363
38396	7590	08/30/2006		
JOHN BRUCKNER, P.C. P.O. BOX 490 FLAGSTAFF, AZ 86002			EXAMINER WILLIAMS, SHERMANDA L	
			ART UNIT 1745	PAPER NUMBER

DATE MAILED: 08/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/634,651

Applicant(s)

MALSERVISI ET AL.

Examiner

Shermanda L. Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 and 44-59 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group II claims 5-43 in the reply filed on 7/17/2006 is acknowledged. The traversal is on the ground(s) that it has not been established that a search of both claims of Group II and IV would present an undue burden. This is not found persuasive because Group IV requires stranded particles fabricated of zinc. This claim limitation is not required for Group II prosecution. Group II and Group IV are to distinct inventions requiring separate searches.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Objections***

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 8 and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not support an aspect ratio ranging from 2-30. The specification does not proved a standard or criteria for determining this parameter.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 7, 8, 10, 11, 13, 22, 23, 26, 28, 29, 31, 33, and 35 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claims 7, 8, 10, 11, 13, 22, 23, 26, 28, 29, 31, 33, and 35 recite a broad recitation and each claim also recites a narrower statement of the range/limitation therein.

7. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 15, the phrase "less than about" is not defined by the claim and the specification does not provide a standard for ascertaining the requisite

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degree of the particle size. One having ordinary skill in the art would not be reasonably apprised of the scope of the invention.

8. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 5 recites the limitation "the not classified material". There is no antecedent basis for this limitation in the claim. The claim wording is unclear.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claim 5 rejected under 35 U.S.C. 102(e) as being anticipated by Huot (US 6,344,295). The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome

either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

11. Hout discloses a zinc alloy powder for use in electrochemical cells. Hout teaches the log-normal particle size distribution of the zinc powder determined by separating the particles into size categories and plotting the weight (col. 5 lines 57-67). A linear correlation was computed and expressed in term of the particle diameter and the slope (Table 1).

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huot as applied to claim 5 above, and further in view of Clash (US 09/403,965). Clash discloses zinc shapes for electrochemical cells. Clash teaches that zinc particles can have spheroid morphology such as spherical or teardrop shapes (paragraph 20).

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14. Claims 7, 10, 13, are rejected under 35 U.S.C. 103(a) as being unpatentable over Huot and Clash as applied to claims 5 and 6 above, and further in view of Urry (US 6,022,639). Urry '639 discloses a zinc anode for an electrochemical cell. The zinc anode is comprised of zinc particles or flakes having an average length of 0.024 inches or approximately 610 microns (col. 3 lines 6-9; 28-30). Also, Urry '639 teaches that the width of the zinc particle ranges from 0.024 to 0.040 inches or approximately 610 to 1,016 microns (col. 3 lines 28-30). The particle length and width taught by Urry '639 falls with the ranges of the current application respectively. It would have been obvious to one having ordinary skill in the art at the time of the invention to employ zinc particles of the stated characteristics for proper conductivity within the cell.

15. Claims 8, 9, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huot, Clash, and Urry '639 as applied above, and further in view of Chi et al. (6,479,188). Chi discloses a cathode tube for use in electrochemical cells such as zinc air cells. Chi teaches an anode containing zinc particles that have an aspect ratio of at least two and are acicular in shape (col. 4 lines 63-67; col. 5 lines 16-19). As well, Chi teaches that the zinc particles may be spherical. It would have been obvious to one having ordinary skill in the art at the time of the invention to employ zinc particles that are acicular or spherical in nature having an aspect ratio between 2 and 30. The zinc particles of the stated characteristics for proper conductivity within the cell.

16. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huot as applied to claim 5 above, and further in view of Goldstein et al. (US 6,015,636). Goldstein teaches the use of two zinc materials or metals for the anode of an

electrochemical cell. There is an electrochemically prepared zinc (first zinc material) and a zinc prepared by thermal atomization (second zinc material) of molten zinc (col. 1 lines 24-31; 34-42). The first zinc material has an average particle size of less than 75 microns (col. 2 lines 25-31). The second zinc material has an average particle size of 150-250 microns (col. 2 lines 37-45). Due to the difference in particle size, the physical characteristics (particle length, width, and aspect ratio) of the first and second zinc materials are different. The combination of the first and second zinc material in an anode enhances the cell performance (col. 1 lines 57-60). It would have been obvious to one having ordinary skill in the art at the time of the invention to combine a first and second zinc metals having different physical characteristics to improve cell performance.

17. Claims 15, 16, 17, 18, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huot as applied to claim 5 above, and further in view of Durkot et al. (US 2002/0155352). Durkot discloses an electrochemical cell anode comprised of zinc alloy particles suspended in a fluid. The particle size and percentage of particles at a given size is discussed in terms of the mesh screen size (paragraph 40). Fine zinc alloy particles have a particle size of 74 microns and dust zinc alloy particles have a particle size of 44 microns (paragraph 12,13, and 44). The zinc alloy fines and dust particles are from the same source (paragraph 11). An anode having 10 or 45 percent zinc alloy particles of "dust" size or 44 microns is taught (paragraph 15, claims 1, 2, 3, 22, and 25). The current application claims 0 to 50 and 0 to 20 percent of zinc alloy particles in the zinc material are 75 microns. It would have been obvious to one having ordinary skill in



the art at the time of the invention to have the 75 micron zinc alloy particles content range from 20 to 50 percent due to the high discharge rate displayed by the electrochemical cell employing the zinc alloy (paragraph 11).

18. In regards to claims 18-20, the second zinc alloy is the fine zinc alloy. The aspect ratio is not explicitly stated but the ratio of the particle thickness is stated to be no more than 20 percent of the maximum length (paragraph 18). The fine particle size of 75 microns falls into the range of 54 to 425 microns. The preferred composition of 50 percent of the zinc alloy fine size particles is taught by the prior art (paragraph 38). It would have been obvious to one having ordinary skill in the art at the time of the invention to employ a first and second zinc alloy of varying sizes and composition level to enhance the electrochemical cell performance.

19. Claims 21-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huot as applied to claim 5 above, and further in view of Daniel-Ivad et al. (7,008,723). Daniel-Ivad discloses a method for producing an anode to be used in an electrochemical cell. A zinc-alloy is the active material of the anode (col. 3 lines 63-66). The zinc-alloy material may be powder, particulate, or in the form of flakes (col. 3 line 66 to col. 4 line 4). The zinc-alloy material may be comprised of zinc, lead, bismuth, calcium, aluminum, and any combinations thereof (col. 4 lines 6-12). The zinc-alloy may contain up to 800 ppm of lead, up to 800 ppm indium, up to 500 ppm calcium, and up to 200 ppm of bismuth and up to 200 ppm of aluminum. The addition of the above mentioned additives to the zinc anode result in better morphology of the zinc anode and improved cell performance. The addition of the additives also reducing the amount of

gassing that takes place in the electrochemical cell (col. 4 lines 44-61, Examples 1-5).

It would have been obvious to one having ordinary skill in the art at the time of the invention to produce zinc-alloy employing additives such as lead, bismuth, calcium, aluminum, and any combination thereof to enhance the electrochemical cell performance.

20. Claims 40-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huot as applied to claim 5 above, and further in view of Urry et al. (US 2001/0160262), Urry (US 6,33,127), and Guo et al. (US 6,602,629). Urry '349 discloses an electrode for an electrochemical cell. The anode is comprised of a zinc powder that is suspended in a fluid medium (col. 1 lines 21-23). The fluid medium is a gelled electrolyte KOH mixture (col. 1 lines 13-16; 21-23). It would have been obvious to one having ordinary skill in the art at the time of the invention to employ a gelled KOH electrolyte mixture to ensure proper operation of the electrochemical cell.

21. Urry '127 discloses the use of polyacrylic acid as the gelling agent in a gelled zinc anode for an electrochemical cell (col. 1 lines 24-27). The gelling agent in the zinc anode allows for a low viscosity mixture and a uniform dispersion of zinc powder throughout the anode (col. 1 lines 36-39). It would have been obvious to one having ordinary skill in the art at the time of the invention to use polyacrylic as a gelling agent to improve particle-to-particle contact and particle- to-current collector contact in the cell and thereby improving conductivity (col.1, lines 51-58).

22. Guo discloses a zero mercury air electrochemical cell. The anode material is a zinc-lead alloy (abstract). The electrolyte is about 97 weight percent potassium

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hydroxide (KOH), about 3 weight percent zinc oxide (ZnO), and a small amount of polyethylene glycol (col. 6 lines 28-36; Table 1). The KOH is a 33 percent aqueous solution. It would have been obvious to one having ordinary skill in the art at the time of the invention to produce an electrolyte solution that is 98 percent aqueous KOH and 2 percent zinc oxide to ensure proper operation of the electrochemical cell.

23. As well, claims 19, 36-39 are product-by-process claims. These claims are alternatively unpatentable. The courts have ruled that product-by-process limitations, in the absence of unexpected results, are obvious. See MPEP 2113. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. The product of claim 19 and that of claim 18 appear to be the same. Both the cited reference and the claimed invention teach a zinc powder comprising a second zinc metal or zinc-alloy. The product of claims 36-39 and that of claim 5 appear to be the same. Both the cited reference and the claimed invention teach a battery-grade zinc powder comprising zinc metal or a zinc-alloy.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shermanda L. Williams whose telephone number is (272) 571-8915. The examiner can normally be reached on Mon.-Thurs. 7 AM - 4:30 PM and alternating Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (272) 571-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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SUPERVISORY PATENT EXAMINER